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With the emergence of the computer into the educational-vocational guidance field, a redefining of the counselor's function was seen as necessary. Interpretations of the traditional counselor's role are included and the author redefines counseling as "the process of facilitating client self-understanding and self-management through an assessment of an individual's assets and liabilities in relation to the requirements of his life goals." As the definition encompasses a combination of trait factor and client centered counseling theory, basic to its needs are adequate data, a professional counselor, and client concern for making intelligent decisions for himself. By supplying the client with useful information, an integrated simulated computer system is valuable to the field of guidance. (JS)

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TECHNICAL MEMORANDUM 2

THE BARTLESVILLE SYSTEM

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TOTAL GUIDANCE INFORMATION SUPPORT SYSTEM

PROBLEMS ASSOCIATED WITH SIMULATING A COUNSELOR'S FUNCTION IN THE STUDENT DECISION-MAKING PROCESS

By

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Introduction

During the past decade computer modeling and simulation techniques have been employed in a wide variety of research, development and system analysis activities. On numerous occasions man has demonstrated an ingenious capacity for the innovative application of such techniques. Many times this capacity has provided him with a vehicle in which he has been able to accomplish extremely difficult tasks. On some occasions he has been able to reach new and exciting horizons in systems development and technological achievement.

Early applications of computer modeling and simulation techniques have been concentrated in war game activities, military systems analysis and military operations research. More recently such applications have been successfully made in economics, business, and industry. Such applications are currently being made in the field of medicine as well as the behavioral sciences.

Efforts during recent months have resulted in a growing interest in the rapid introduction and emerging development of computer support systems in the field of educational-vocational guidance and counseling.

Initial attempts to design workable systems and applications in this field have been complicated by those problems associated with simulating human behavior and function. The fact remains however, that pioneering work is always seemingly necessary as a genesis of innovation and change. This has been historically true in business, industry, and medicine. Education will probably be no exception.

Computer modeling and simulation techniques can be effectively applied to any discipline in which phenomena can be quantified and represented by a set of mathematical exemplars. However, the application of such techniques in the behavioral sciences is complex in so much as human behavior is not easily quantified. In fact, it is rarely predictable. The challenge of designing adequate simulators for testing and appraising new systems is one most difficult to describe.

In accepting such a challenge, I am reminded of what it means to feel intellectually inadequate while at the same time recognizing a constant hunger to know more about that which is unknown, pursue that which seems most evasive to me, and to chart paths which are yet to be charted so that certain objectives can be reached. I can probably best begin to sate this hunger by asking a set of questions which will probably provoke the very people it is my hope to help. If one hopes to design an electronic saint, must he be satisfied if he inadvertently simulates a professional ass? If so, will one not immediately be confronted with problems associated with the synthetic reproduction of phenomena likely to occur in the actual performance of a given function even though that function is not necessarily performed to the best interests of the client?

The function I am referring to is that of the counselor in the student decision-making process. The ass I shall leave to your imagination. What is this function? Who has defined it? Can it be simulated? What are the problems associated with such a task?

Under the editorship of Gilbert Wrenn, Byrne (1963) proposed a set of specifications of maximum counselor function. These specifications were (1) counselor concern and involvement in pupil development, (2) psychological appraisal, (3) social phenomena, and (4) the facilitation of student self-realization and actualization.

He further described the counselor's function as that of (1) evaluating the status and trends of an individual's development, (2) helping an individual work through developmental obstacles and situationally caused dissatisfactions, and (3) helping an individual make and implement decisions about the plans for his life course, as reflected in an occupation, education, marriage, and other dimensions of his pattern of living.

Stewart and Warnath (1965) stated that "a traditional counseling role has been one of helping clients to evaluate themselves and their environmental realities." They further state that "instead of merely helping youth to adjust to existing conditions, we are proposing that counselors actively seek to change the social conditions that hinder youth's struggles to attain a clear-cut sense of identity."

As can readily be seen in one definition the counselor is evaluating and in the other he is helping the client to evaluate. Such differences make the job of simulating most difficult when one considers the question of which function is best for the client.

Blocher (1966) says, "Counseling is a planned, systematic intervention in the life of another human being. This intervention is aimed at changing that person's behavior. The counselor, if he accomplishes anything, inevitably influences the nature, degree, and direction of these behavioral changes." He further points out that "counseling occurs when there is a mutuality of goals achieved between counselor and client."

My immediate reaction to such a notion is that man will never be able to safely assume he can adequately intervene in the life of his fellow man when he continues to so misunderstand himself. I am further inclined to ask several additional questions. Goals for whom? For what purpose? Why mutuality with counselor? Are we so naive as to assume that a client's goals are not his own and therefore should not be considered completely independent of the counselor?

In 1962, Adams defined counseling as "an interacting relationship between two individuals where one, the counselor, is attempting to help the other, the counselee, to better understand himself in relationship to his present and future problems." McKinney (1958) defined it as "an interpersonal relationship in which the counselor assists the total individual to adjust more effectively to himself and to his environment."

These and many more definitions may be found in the literature. However, the same lack of precise definition will be found. Therefore, it can easily be seen that of major concern are those problems associated with simulating a function that has yet to be precisely defined.

Sachman (1967) defined simulation as the casting, acting, and the configuration of objects and events in the referent test. He states that "simulation is the man with a thousand faces. Simulation is analogy,

and the human capacity for analogy is unlimited." Fitzpatrick (1962) states that "simulation is the symbolic or physical representation and exercising of some aspects of a system."

Needless to say, simulation as used in the present context, involves considerable guesswork and obvious risks in terms of time, cost, and ultimate operational payoff. It involves problems associated with fantasy, wishful thinking, free associative exploration, and many other types of innovative games which are yet to be generated from man's cranial cavity.

Obviously, before the counselor's function can be accurately simulated it must be defined in "real" life terms. I venture to say it will be most difficult to determine how all counselors function. In fact, I will go even further and state that for each counselor's function simulated there will always be another, another, and another counselor who functions differently under the same circumstances and doesn't fit the specifications of the simulation model. Even more difficult, will be the task of distinguishing between the functions as performed by the professionally adequate counselor and the self appointed quack.

For all practical purposes I am going to state a definition of "counseling" and "counselor function." This definition will not necessarily be predicated upon current literature, but is one that is amenable to the needs of the project upon which I am currently working. <u>Counseling is the process of facilitating client self-understanding and self-management through an assessment of an individual's assets and liabilities in relation to the requirements of his life goals</u>. The counselor functions as a vehicle of client actualization and the fuel necessary to propel such

a vehicle is "useful information." It makes little difference from where, whom, or how the fuel is supplied as long as it ignites and the propellant drives the vehicle toward the desired end.

The general frame of reference associated with the definitions here stated encompasses a combination of "trait factor" and the "client centered" counseling theory. The general theory postulated is that a client will experience therapeutic value, improved functioning and organization of self by interacting with a counselor who is genuinely himself in the relationship, is able to swiftly and accurately access adequate information, exhibits unconditional positive regard for the client, and clearly experiences an empathic understanding of the client's internal frame of reference and the client's understanding of his subjective self as contrasted with objective reality. Basic to this postulate is adequate data, professional counselor, and sufficient client concern for making "intelligent" decisions for himself.

When the limits or constraints to be placed upon the simulation model are recognized it becomes obvious that certain functions of the counselor cannot readily be simulated. Martin (1968) points out that "Humans can perform certain higher order perceptive thinking processes which cannot be programmed on computers in the present state of the art. Therefore, the application of the computer may not be too helpful for tasks that are predominantly perceptive in nature." He further claims that "the human capability of making judicious decisions can be greatly enhanced by using a computer to give accurate, up to date information relevant to the decision-making process. Certain critical decisions

should always rest with the human evaluator. These decisions cannot be programmed for the computer."

The task of accessing, processing, and supplying the client with "useful information" is one most conducive to simulation. These tasks involve simulating the counselor's input, process, and output of client data. Naylor, et al. (1966) describes the function as one of interaction between exogenous (input variables), status (state of a system) and endogenous (output variables) variables. (See Figure 1.)

Having given you some notion of what it is I am trying to simulate it now seems both logical and practical to define simulation. Simulation as here used is a <u>numerical technique for conducting controlled experiments on a digital computer, which involves certain types of mathematical and logical behavior exemplars in a human counseling relationship</u>.

There are three basic types of simulated systems: (1) fully automatic, (2) semiautomatic, and (3) integrated. The first of these is primarily quantitative in nature and is not amenable to application in situations where human roles significantly affect the internal processes of the system. The second system is applicable to processes where a need exists for critical decisions to be made by human beings. This system provides a human interrupt capability in the process. The third system is applicable where there is a definite need for the inputs to be controlled. This system is particularly applicable in training programs and laboratory work.

The decision to use simulation techniques should be made on the basis of applicability, cost, and simplicity. Before utilizing simulation

THE COUNSELOR INFORMATION TRANSMISSION FUNCTION
IN THE STUDENT DECISION-MAKING PROCESS

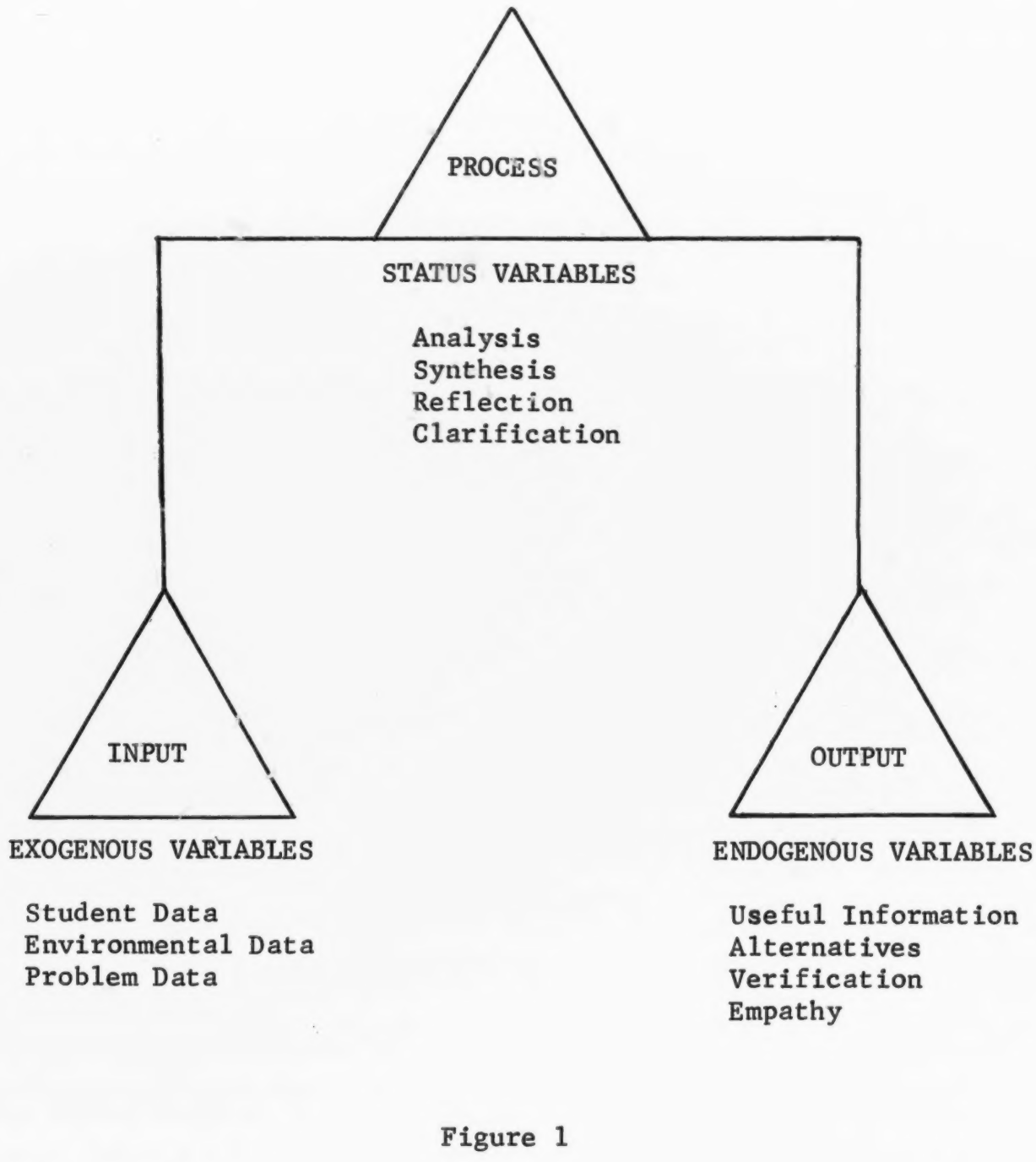

Figure 1

techniques one should be reasonably sure he can derive a satisfactory approximation to the solution of his problem. He should also be reasonably sure that the technique will be amenable to interpretation and practical in terms of return for dollars spent.

I am not particulary concerned with those problems associated with applicability, cost, and simplicity even though I am certain many exist and are important. I am concerned however, with problems related to the notion of programming a digital-computer for the purpose of modeling human behavior and function. More specifically, I am referring to the behavior of a human counselor who functions as a transmitter of "useful information" and information that will help youngsters in the process of making "intelligent decisions."

It is common knowledge that computer programs can and have been written that are germane to human behavior as reflected in game decisions. Such games as checkers, bridge, chess, and ticktacktoe have been programmed successfully. Such programs are predicated upon a set of initial conditions and legal rules for playing the game. There is a need for participants in the game to make critical decisions during the game which affects the output. Therefore, such games (simulations) are semiautomatic in nature. Such complex games generate an astronomical number of alternative sequences and present many problems associated with finding ways to limit the search function.

The behavior of a human being in a relationship with another human being such as required in a counseling relationship, has yet to be precisely predicted by any given set of predetermined rules. Each time the counselor is confronted with a new client the rules are subject

to change. The problem is, what kind of change and how severe is this change when considered in relation to the requirements of the counselor in the relationship.

It is because of the unpredictability of client change that applications of fully automatic simulation techniques are open to question. Even the simplest of simulation systems must therefore provide the human interrupt capability. Without this capability the system will probably fail when confronted with unpredicted change in client behavior.

In conclusion, let me restate the major problems associated with simulating the counselor's function in the student decision-making process. These are (1) definition of "counseling" and "counselor function"; (2) distinguishing between the professionally adequate counselor and the self appointed quack; (3) determining the degree of automation to use in applying the simulation technique; and (4) controlling variance in the counseling relationship generated by client differences.

There is little doubt that simulation techniques are potentially applicable in all disciplines. The application of such techniques should be limited to those problems where the application will be useful and produce meaningful results.

Before serious attempts are made to utilize simulation techniques in computerizing human functions there needs to be some serious soul searching. One needs to ask if the synthetic reproduction of a multi-dimensionally complex human function would be of value in developing new support systems.

Equally important is the question of whether or not it is theoretically possible to build a simulator which could respond to any situation with conclusions based on feeling, emotions, perceptions, biases and intuition. In any case, the problems associated with building a computer simulation system with the capabilities of functioning like man seem to thwart the logic of such a notion.

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